

October 2, 2020

Submitted via email: ORCRMMeasurement@epa.gov

Ronald Vance
Branch Chief
Office of Resource Conservation and Recovery
Environmental Protection Agency

Re: U.S. National Recycling Goals

Dear Mr. Vance:

The American Chemistry Council (ACC) appreciates the opportunity to submit comments on the List of Potential Measures that the Environmental Protection Agency (EPA) released in September for consultation.¹

ACC is a non-profit trade association representing the leading manufacturers of chemicals and plastics in the United States. Its Plastics Division is an industry leader in promoting innovative plastics recycling and recovery programs and is a proud sponsor of educational and outreach programs to improve plastics recycling nationwide.

We commend the EPA for advancing the discussion about enhancing measurement methodologies and the standardization of reporting across the United States. This important initiative will support the development of an effective national strategy built on solid measures to harmonize recycling definitions and track progress.

As a signatory to the America Recycles Pledge and an organization leading the transition to a more circular economy, ACC strongly supports the EPA's goals to improve the quality and detail of recycling data. These efforts align with our own circular economy goals, which we announced in 2018.² These include:

- 100% of plastics packaging is re-used, recycled or recovered by 2040.
- 100% of plastics packaging is recyclable or recoverable by 2030.

Our comments in response to the consultation questions (attached to this letter) address the following issues:

- 1) Metrics which are key to driving innovation, stimulating investment, and strengthening end markets in the U.S. recycling system;
- 2) Metrics which would provide the most useful data to track progress towards EPA's overall objective of strengthening the U.S. recycling system;

¹ <https://www.epa.gov/americanrecycles/us-national-recycling-goals>

² <https://www.americanchemistry.com/Media/PressReleases/Transcripts/ACC-news-releases/US-Plastics-Produrers-Set-Circular-Economy-Goals-to-Recycle-or-Recover-100-Percent-of-Plastic-Packaging-by-2040.html>

- 3) Metrics that ACC would like to propose for consideration in other, less critical components of EPA's draft National Recycling Strategy;
- 4) Metrics for consideration in EPA's list of Potential Measures; and
- 5) Metrics that can be measured and incorporated with data currently available and should be measured more frequently.

In the attached document, our responses to the EPA's questions are specific to plastics but can also be applied to other materials in the recycling system. ACC will seek an opportunity to meet with EPA to discuss the U.S. National Recycling Goals in greater detail. In the interim, please feel free to contact me at 202-249-6600 or Joshua_Baca@americanchemistry.com, or Craig Cookson, Senior Director of Recycling & Recovery, with any questions regarding these comments. Craig can be reached at (202) 249-6622 or Craig_Cookson@americanchemistry.com.

Sincerely,

A handwritten signature in black ink, appearing to read 'Joshua Baca', with a stylized, flowing script.

Joshua Baca
Vice President, Plastics Division
American Chemistry Council

1. Three metrics are central to driving innovation, stimulating investment, and strengthening end markets in the U.S. recycling system.

To advance U.S. EPA's National Recycling Goals, there are three metrics we believe are the most important for EPA to track and report.

Recycling rates will help the EPA understand how the U.S. is progressing to managing its materials more sustainably, especially post-use. It is essential to more accurately measure the national recycling rate to assess how the recycling system is minimizing environmental impacts by diverting post-use plastics and other recyclable materials away from landfill so that they can be recycled into new products and materials. Additionally, the measurement of recycling rates helps companies understand the supply of materials available and plan investment decisions. Local governments can also assess recycling rates to plan needed adjustments to collection and sorting systems.

Recycling access rates can help identify where further investments must be made to increase collection, expand processing capacity and develop end-markets. Tracking this information is important as the private sector, governments, and other stakeholders plan investment decisions around the expansion of recycling services to exurban and rural communities, as well as multi-family buildings. Having clear, up-to-date measurements for material-specific access rates will help producers and brand-owners of packaging make decisions on product design, collection and sorting methods.

Recycled content rates are a key measurement to drive innovation and stimulate investment in the recycling system because they indicate the domestic demand for recycled materials and the sustainability of the end-markets for those materials. Tracking recycled content from both mechanical and advanced processes will help companies plan investment decisions in existing and new technologies to meet this demand. For measuring recycled content in products and chemicals derived from advanced (chemical) recycling, a credible mass balance standard should be used to attribute recycled content. (See page 6 for further information on the mass balance approach).

2. ACC supports the EPA's efforts to develop common, system-wide metrics to assess the performance of the U.S. recycling system.

Measuring the performance of the U.S. recycling and recovery system is essential for ensuring we are making progress towards a more circular economy. Today, there are data gaps that make tracking and comparing results across materials and jurisdictions challenging. We agree with the EPA's assessment that the standardization and aligning of measurements will produce better data to inform policy and investment decisions. The EPA's annual *Advancing Sustainable Materials Management: Facts and Figures Report* is considered the standard for assessing recycling, recovery and waste management in the United States, so improving its accuracy and value to stakeholders is among the highest priorities.

Our general recommendation is to focus on standardizing the most important definitions and metrics first before developing additional measurements. In particular, we recommend that the

EPA prioritize working on the first objective of assessing recycling performance through system-wide recycling measures. Developing a more robust recycling system requires reliable metrics to track progress and evaluate the effectiveness of both policy approaches and system operations. The outcome of this work should provide the basis for updating the EPA's guidance document, *Measuring Recycling: A Guide for State and Local Governments*, which was published in 1997. It should also support the development of an effective national framework for recycling, recovery and waste management.

Finally, because EPA relies on industry data for much of the report, EPA should have a critical role in developing some minimum standards for how the surveys are conducted, what counts as recycling and the overall quality of the data submitted. Currently there are no minimum standards for data submissions to EPA. Below we list our responses to what we believe are the most important definitions included in the EPA's List of Potential Measures. With so much to measure, we believe the EPA should focus on several core areas and build from there in subsequent years. Therefore, we believe the two priority areas where metrics measurement is needed are:

- System-Wide Recycling Measures to Assess Recycling Performance, and
- Strengthening Markets for Recycled Materials.

Objective: System-Wide Recycling Measures to Assess Recycling Performance

We recommend EPA focus on three high priority metrics: the recycling rate, recycling access rate and capture rate.

The recycling rate serves as an essential metric to measure the performance of the overall recycling system. When defining recycling for inclusion in the rate, it is important to capture all recycling technologies and recycled end-products, particularly as advanced recycling technologies commercialize with the ability to convert post-use plastics and other materials into a versatile mix of end-products, such as new plastics, chemicals, waxes, lubricants and other products different from the original material. We appreciate that the EPA's proposed definition does aim to cover these technologies, but we would suggest including some of the phrasing from the European Union's (EU) definition of "recycling"³ for further clarity and to avoid potential misunderstanding. We recommend modifying the definition of "recycling rate" to the following:

- ***Recycling rate:*** *The percentage of the total amount of discarded materials generated that are converted into feedstocks for new products, products, materials or substances whether for the original or other purposes.*

Additionally, we believe it's a worthy goal for households to have equal access to recycling as with trash collection services. Curbside recycling services are only available to 73 percent of the U.S. population, according to the 2015/16 study on the availability of recycling, prepared by the Sustainable Packaging Coalition (SPC).⁴ Tracking this data point should be a key metric for EPA's National Recycling Framework.

³ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32008L0698>

⁴ <https://sustainablepackaging.org/findings-released-spc-centralized-study-availability-recycling/>

Finally, capture rates are an important metric to measure consumer participation and a system's effectiveness at collecting recyclable materials. The rates can be calculated for the overall recycling system or for individual material categories. This data should be tracked, and we recommend that the EPA aligns its definition with the one currently being used by The Recycling Partnership (TRP).

TRP defines the capture rate "as the weight of recyclable material collected for recycling (not including contaminants) divided by the weight of all recyclables in the waste stream."⁵ Not all of the recyclable material collected makes it through the material recovery facility (MRF) to a bale that will be sold for recycling. The EPA's proposed metric for "processing yield" can capture that difference, which we discuss below. We would recommend modifying the capture rate definition to:

- **Capture rate:** *The percentage of recyclable material that is collected for recycling.*

As with the recycling rate, capture rate data should be collected for existing materials, but critically important that's its able to account for new materials and packaging as they are added to recycling programs.

Objective: Strengthening Markets for Recyclable Materials

Developing domestic markets for recycled materials is vital for the overall health of the system and we believe there are several areas of measurement important for EPA to track.

In July 2017, China announced it would no longer permit imports of recyclable plastics above a stringent 0.5% contamination threshold. Beginning in January 2018, the "National Sword" policy came into effect and post-use plastic exports to China were virtually eliminated. In the face of these challenges, there has been a wave of announcements and investments made in domestic recycling across the U.S.⁶

Over less than three years (January 2018 to August 2020), there have been 64 projects worth \$5.3 billion in announced investments to modernize mechanical and advanced recycling technologies in the U.S., many of which expand the types and volumes of plastics that can be reused. These projects have the potential to divert more than 3.6 million metric tons (~ 8.0 billion pounds) of post-use materials (mostly plastic but some other post-use materials) from landfills.⁷

Measuring the shift to domestic recycling markets will be important for supporting the development and commercial adoption of new advanced recycling technologies. We suggest that the Agency's definition of domestic utilization make clear that this is the total amount of recycled materials domestically divided by the total amount of materials recycled. Therefore, we would recommend modifying the definition as follows:

⁵ <https://recyclingpartnership.org/wp-content/uploads/2018/05/Start-at-the-Cart-Resource-Recycling.pdf>

⁶ <https://www.americanchemistry.com/Media/PressReleases/Transcripts/ACC-news-releases/US-Recyclers-Increasing-Domestic-Investments-and-Responding-to-Chinas-Export-Policy.html>

⁷ <https://plastics.americanchemistry.com/advanced-recycling-resources/investments-in-advanced-recycling-us.pdf>

- ***Domestic utilization:*** *The percentage of the total amount of recycled materials used domestically as compared to the total amount used both exported and used domestically.*

Recycled content is also a key measurement to gauge the success of any recycling system. While there are standard methods to measure recycled content derived from mechanical processes, further work is required to create standards and certification for measuring recycled content derived from advanced recycling.

Advanced plastics recycling refers to innovative technologies which break down plastics into their molecular building blocks. These “feedstocks” then are repurposed into raw materials for new plastics, industrial chemicals, waxes or fuels. Tracking the use of these materials requires a mass balance approach⁸, which measures the amount of used plastic that enters advanced recycling processes and provides information that helps confirm claims of recycled content allocated to the resultant products do not exceed that amount. Mass balance has previously been successful in developing high levels of transparency and consumer trust for other materials, such as paper and renewable energy.

The development of mass balance standards and certification will require governmental institutions to recognize certification processes via credible 3rd party audits that produce verifiable claims for stakeholders and attribution of recycled content to one or more end products. ACC has developed mass balance certification principles for advanced recycling that can help guide this decision-making.⁹ As that work continues, we recommend the following definition of recycled content to ensure it encompasses both mechanical and advanced recycling processes.

- ***Recycled content:*** *The percentage of recycled content derived from mechanical processes and via chemical processes using a mass balance approach, within manufactured goods, products, materials and fuels.*

3. ACC would recommend the following metrics on the remaining two objectives of less emphasis.

We recommend that EPA first focus on the core objectives described above. However, we understand that the Agency plans to announce numerical targets and baselines for each of the four objectives. Thus, we have added our recommendations on the two areas of less emphasis.

Objective: Reducing Contamination in the Recycling Stream

Understanding curbside contamination is important for building a more effective recycling system. A lack of standardization in the materials collected from jurisdiction to jurisdiction, as well as limited or ineffective public education, can lead to higher levels of contamination, which result in higher management costs and limited markets. Contamination rates influence both domestic and global markets for recycled materials. Regular reporting on contamination levels

⁸ <https://www.americanchemistry.com/Media/PressReleases/Transcripts/ACC-news-releases/Mass-Balance-Certification-Principles-Will-Support-Plastic-Recycling-Growth-and-Accelerate-Advanced-Recycling-Development.html>

⁹ <https://plastics.americanchemistry.com/recycling-and-recovery/Mass-Balance-Certification-Principles-2020.pdf>

can help decision-makers know when to adjust public education campaigns to improve results and address challenges for end-markets. However, it is critically important to recognize that the system not remain static and we work to get more materials recyclable. Material that is today's contamination should be seen as tomorrow's potentially recyclable material. We agree with the EPA's proposed definition of curbside contamination as:

- ***Curbside contamination:*** *The percentage of materials that residents place in their recycling collection that are not accepted in their curbside program or acceptable materials that have high amounts of residue.*

Objective: Increasing Materials Processing Efficiency

Measuring processing efficiency can best be done by tracking the difference between the total amount of collected materials sent to a MRF for processing and the total amount of materials sold by a MRF for recycling. As defined by the Agency, the processing yield would measure the “percentage of materials recovered by a MRF or secondary processing facility compared to the incoming materials.” The percentage of materials baled and sold for recycling would be diverted from landfill while the residual materials that cannot be recycled would be sent to a facility to be converted to energy or a landfill if not energy recovery facility existed. We believe the residual rate is not the best suited metric as material which is not recycled at a primary MRF or even secondary MRF can still be used as a feedstock for advanced recycling for conversion to new plastics, chemicals and other products. For this reason, ACC recommends that “processing yield” be defined as follows:

- ***Processing yield:*** *The percentage of materials sold for recycling by a MRF, a secondary processing facility and advanced recycler compared to the incoming materials.*

It should be noted that collecting this data will be challenging. As a result, we recommend building this metric into the policy considerations for the National Recycling Strategy rather than pursuing it over the short-term.

4. Additional metrics for tracking advanced recovery should be considered in EPA's List of Potential Measures.

As the versatility of end markets are made possible because of advanced recycling technologies, we recommend EPA revisit its hierarchy and consider tracking “advanced recovery” in order to have a more complete picture of materials diverted from landfill disposal. Understanding the end markets suggest this should be added to the List of Potential Measures to separately track materials converted into liquid fuels for marine, aviation and auto. Currently the EPA's definition of “recovery rate” refers “to the diversion of materials from the municipal solid waste stream for the purpose of recycling or composting.”¹⁰ We recommend tracking the total diversion of materials from landfill disposal through a “diversion rate.” Updating the terminology in this way would allow for the term “recovery” to be used only when referencing advanced recovery or energy recovery.

¹⁰ P. 54, *Measuring Recycling: A Guide for State and Local Governments*. <https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=106011CF.TXT>

Advanced recovery refers to high-technology processes using advanced recycling technologies that convert plastics and other materials into transportation fuels, such as jet fuel for airlines or ethanol for use in automobiles. Energy recovery should be reserved for the direct combustion of materials at waste-to-energy facilities, cement kilns and industrial boilers.

Tracking this data will be important as more investments are made in advanced recycling technologies. This demonstrates the end product versatility of advanced recycling technologies and how recycling and recovery is not static and changing rapidly.

5. Recycling access rates are measurable and can be integrated with data currently available, but should be measured more frequently.

Access to recycling is a fundamental gateway to being able to have a package actually recycled. It is the reason why the U.S. resin manufacturers' interim circular economy goal is that 100 percent of plastics packaging is recyclable or recoverable by 2030. Ensuring recycling access to all formats of plastics packaging is essential to then meet U.S. plastic resin producers' 2040 goal to re-use, recycle or recover 100% of plastics packaging by 2040.¹¹

A remaining challenge is that studies measuring access to recycling by material type are currently completed but remain infrequent due to the costs. ACC has funded studies in 2011 and 2012 and supported another in 2016 by the Sustainable Packaging Coalition. We plan to continue supporting this work, but EPA could demonstrate leadership by working with industry and other organizations to ensure studies are done more frequently, potentially every two years. With the importance of expanding recycling access to EPA's national strategy, we recommend the development of a plan to ensure that access is routinely measured. Access rates are critically important as they govern the ability of a companies to convey the recyclability of key packaging formats. These recyclability claims are then critical to consumer engagement and reducing confusion.

The Agency's partnership with ACC via the Wrap Recycling Action Program (WRAP) is a good example of industry-government collaboration to increase access to and participation in plastic film recycling.¹²

Conclusion

Significant industry efforts are underway to drive participation, innovation, and progress across the entire value chain for EPA's National Recycling Goals. ACC believes that a focused list of key metrics will help foster common measurement approaches and definitions of recycling and recovery across the country.

Most importantly, in addition to U.S. resin manufacturers' circular economy goals, hundreds of global brand companies have committed to making all of their packaging recyclable and including increased percentages of recycled content. This envisions that many of the packaging

¹¹ <https://www.americanchemistry.com/Media/PressReleasesTranscripts/ACC-news-releases/US-Plastics-Producers-Set-Circular-Economy-Goals-to-Recycle-or-Recover-100-Percent-of-Plastic-Packaging-by-2040.html>

¹² <https://www.americanchemistry.com/Media/PressReleasesTranscripts/ACC-news-releases/US-Plastics-Producers-Set-Circular-Economy-Goals-to-Recycle-or-Recover-100-Percent-of-Plastic-Packaging-by-2040.html>

formats that are not recyclable today will be recyclable in the future thanks to new collection strategies, upgraded sortation technology and the use of robotics and other innovations.

Additionally, the ability to convert mixed material streams back into their basic molecular components is a critical part of the end market solution. As described above, the products produced from these processes offer the potential to be converted back to their original material or in the form of new chemicals, coatings, waxes, lubricants, fuels and other products. Therefore, it is essential for the EPA to envision measurement as dynamic and not static, so that materials not commonly recycled today are accounted for when they move from today's contamination to tomorrow's valuable recyclable commodity.

We appreciate the opportunity to comment on the EPA's U.S. National Recycling Goals and look forward to working with the Agency on its national strategy in the coming months. We would welcome the opportunity to work more closely with the EPA on these matters.

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